

Remarks

Claim 1 has been amended to incorporate into it the limitations of original claims 2 and 3, which are now canceled.

Claim 4 has been amended to change its dependency, consistent with the amendment to claim 1.

Claim 11 has been amended to incorporate into it the limitations of original claim 1 (from which claim 11 originally depended). No change in scope is intended.

Claim 19 has been amended to incorporate into it the limitations of original claims 20 and 21, which are now canceled. The dependency of claim 22 has been changed accordingly.

The case as amended contains 3 independent claims and 20 total claims, and so no fee is believed to be due for this amendment.

Claims 8-10, 14-18 and 23 are indicated as defining allowable subject matter.

Regarding the rejection over the Ishii et al reference

This rejection is overcome by the amendment of claim 1 to incorporate the limitations of original claim 3. Original claim 3 was not rejected over the Ishii et al reference, and so claim 1 is patentable over that reference for the same reasons as original claim 3 was.

Regarding the rejection over WO 03/008186

Original claims 1-7, 11-13, 19-22 and 24 were rejected as being obvious over WO 03/008186.

Claim 1 as amended now incorporates the limitations of original claims 2 and 3. The claim now specifies that the particles have (a) a silica base, (b) a TiO<sub>2</sub> or ZrO<sub>2</sub> coating layer, an average diameter of from 10 to 150 nanometers and a refractive index greater than that of silica alone. WO 03/008186 does not teach or suggest particles having this specific combination of attributes.

WO 03/008186 describes a broad range of coated particles. A wide variety of substrate particles and coatings are described, which of course leads to a large number of possible subcombinations. Nothing in WO 03/008186 leads to the specific selection of silica particles, together with a TiO<sub>2</sub> or ZrO<sub>2</sub> coating layer, and a specific particle size of from 10

to 150 nanometers. To the extent that WO 03/008186 describes coated silica particles specifically, that teaching is contrary to this invention. See the paragraph numbered "3" on page 8 of the reference, where silica particles (among others) are coated with nitride passivating coatings, not a  $\text{TiO}_2$  or  $\text{ZrO}_2$  coating. The broad general teaching of WO 03/008186, taken together with a large number of specific subcombinations, all different than the particular subcombination of current claim 1, cannot fairly be said to suggest the particular particles of claim 1, as now amended. The same is true with respect to current claims 5 and 7, each of which is even more specific than amended claim 1.

Claim 4 of this case requires that the particles have a particular refractive index. This amounts to yet another selection, as to the relationship between the base particle diameter and coating thickness, which is not suggested by the general or specific teachings of WO 03/008186.

Claim 6 requires a still more specific structure—a silica base particle, a  $\text{TiO}_2$  or  $\text{ZrO}_2$  coating layer, and another silica layer atop the a  $\text{TiO}_2$  or  $\text{ZrO}_2$  coating layer. WO 03/008186 does not teach or suggest this still more specific material. Applicants' note that the rationale for allowing claim 6 over WO 03/00186 is the same as that for allowing claim 8 over that reference (which the examiner has done).

Claim 11 is to a curable dental composite. It includes particles as defined in original claim 1, plus a photocurable polymeric resin. WO 03/008186 does not describe dental composites of any type, nor does it describe any materials that include coated particles in a photocurable resin. The mention of WO 03/008186 of "thermoplastic or thermoset resin" (p. 7, line 14) does not amount to a description of a "photocurable" material. In particular, thermosetting resins are not inherently "photocurable", even if they contain no initiator. Various types of thermosetting materials are thermally curable (such as epoxies, which are specifically mentioned at page 16-17 of the reference) or spontaneously cure even at room temperature (which is the case with many polyurethanes). Other types may be cured catalytically. The mere mention of "thermosetting" resins is not an inherent disclosure of a "photocurable" resin. Therefore, WO 03/008186 does not teach or suggest the subject matter of claim 11, or the more specific subject matter of claims 12 and 13.

Claim 19 now includes the limitations of original claims 20 and 21. It is patentable over WO 03/008186 for substantially the same reasons as claim 1. Claim 22 is even more specific and is patentable over WO 03/008186 for substantially the same reasons as claim 4.

Claim 24 is believed to be patentable over WO 03/008186 for the same reasons as are claims 6, 8 and 23.

A notice of allowance is respectfully solicited. The undersigned is available by telephone if a conversation would help resolve any remaining issues.

Respectfully submitted,  
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